Charter of the Effectiveness Monitoring Committee (EMC)

I. Necessity

Effectiveness monitoring is a key component of adaptive management and is necessary for assessing if management practices are achieving the various resource goals and objectives set forth in the California Forest Practice Rules. Despite an increase in forestry-related monitoring in the past decade, there is relatively little information regarding the type, distribution, statistical power, scientific relevance, or cost-effectiveness of monitoring in private and state forestlands of California. While a large amount of water quality-related monitoring is currently being undertaken, there has been a substantially less coordinated monitoring effort for terrestrial wildlife or botanical resources. For both water/aquatic habitat and terrestrial/botanical resources, it is clear that: (1) agency-required monitoring needs to be better coordinated and reported; (2) increased scientific rigor, agency participation, and monitoring transparency is required to increase stakeholder acceptance of the extensive monitoring being conducted on non-federal forestlands; and (3) a process is needed that provides a feedback loop allowing the existing California Forest Practice Rules and other forestry-related laws and regulations to be evaluated and possibly modified based on sound scientific, verifiable monitoring results. A recent review of existing monitoring programs in California did not provide evidence of a consistently effective feedback loop between water quality-related monitoring data and decision making (Coe 2009). The State of Washington provides an example of how California could apply scientific research findings to generate science-based forest practice regulations (Cafferata et al. 2007).[1]

Development of the Effectiveness Monitoring Committee (EMC) will allow the Board of Forestry and Fire Protection (Board) and the Natural Resource Agencies to determine if portions of the California Forest Practice Rules and other laws and regulations related to forest resources are effective in achieving resource objectives, or if rule modifications are required. As an example, one resource objective includes protecting beneficial uses of water, such as anadromous salmonid habitat,. Adaptive management is a structured, iterative process of decision making in the face of uncertainty, with an aim to reducing uncertainty and responding to changed conditions over time via system monitoring.

[1] The Adaptive Management Program has been used for several years in the state of Washington to provide science-based recommendations and technical information to assist their Forest Practice Board in determining if and when it is necessary or advisable to alter forest practice rules (WFPB 2005).

Implementing a statewide adaptive forest management program in California requires an integrated political, social, and scientific framework to address the various adaptive management implementation criteria. The Washington Forest Practices Adaptive Management Program and the Oregon Department of Forestry Indicators of Sustainable Forests Program offer templates for implementing a statewide effectiveness monitoring and adaptive management program here.

While implementation and limited short-term effectiveness monitoring focused on aquatic issues have been conducted over the past 20 years on California's private and state forestlands (Tuttle 1995, BOF 1999, Cafferata and Munn 2002, Brandow et al. 2006, Longstreth et al. 2008), no comprehensive, structured program has been established to provide an adaptive management approach.[2] Beginning in 1989, the Board's Monitoring Study Group (MSG) has conducted implementation monitoring and short-term effectiveness monitoring, as part of establishing a long-term monitoring program. The MSG, however, has largely become a forum for sharing scientific information regarding water quality monitoring conducted in California since 2000. Additionally, the Board's recently established Research and Science Committee (RSC) reviews general research needs for forests in California. While these existing committees may be able to address some portion of the goals and objectives of an EMC, they cannot, either individually of cumulatively, provide the structure, scientific guidance or support of an EMC.

II. Purpose, Goals, and Objectives

The Effectiveness Monitoring Committee will act as a technical advisory committee to the Board of Forestry and Fire Protection (Board) to develop and implement an effectiveness monitoring program that can provide an active feedback loop to policymakers, managers, agencies, and the public. The EMC will receive oversight and guidance from the Board's Research and Science Committee (RSC). The EMC will provide input to ensure a scientifically defensible monitoring effort is used to credibly evaluate the effectiveness of the California Forest Practice Rules and other forestry-related laws and regulations related to water quality, aquatic habitat, and wildlife habitats. Also, the EMC will provide input to a formal adaptive management approach to policy development and analysis (Figure 1).

Goals: To ensure a collaborative science-based monitoring effort and process-based understanding of the effectiveness of the California Forest Practice Rules and other forestry-related laws and regulations on water quality, aquatic habitat, and wildlife habitats, the EMC will:

(a) Support an adaptive management process by providing feedback regarding California Forest Practice Rules effectiveness (i.e., monitor

[2] Note that longer-term instream cooperative monitoring projects, such as the Caspar Creek watershed study and the Judd Creek watershed study have provided detailed but localized information on Forest Practice Rule effectiveness related to water quality concerns.

actions and suggest to the Board where management actions could be adjusted).[3]

(b) Help facilitate and recommend monitoring practices to evaluate how well current practices restore and maintain riparian, aquatic, and terrestrial habitat on private and state forestlands for state and federally listed species and priority species of concern (aquatic and terrestrial).

(c) Ensure that the process meets the requirements of the Clean Water Act for water quality on private and state forestlands.

(d) Establish a peer review process to evaluate monitoring and research products.

(e) Ensure that appropriate scientific methods and statistical evaluation, if necessary, are used to evaluate effectiveness of California Forest Practice Rules and other forestry-related laws and regulations.

(f) Encourage dissemination of information through general public and scientific outlets.

Objectives:

A. Involve representatives of key stakeholders that have demonstrated previous collaboration in resource monitoring or scientific studies.

B. Develop overall monitoring strategic plan or "road map" including:

1. Catalog and review past and ongoing monitoring project results, encourage continuation of valuable projects/monitoring programs, help guide development of new approaches, and ensure that duplication is avoided.[4] The review should state in a hierarchical format the level of existing information for specific watershed and wildlife issues of concern.
2. Accept and consider questions from stakeholders and the interested public (key areas of concern) about the effectiveness of specific aquatic or terrestrial-related forest practice rules (e.g., consider questions on specific water quality-related forest practice rules in meeting established resource objectives).
3. EMC members themselves should identify critical monitoring questions that address various EMC goals and objectives.

[3] An adaptive management program should ensure that the Board adjusts its regulations for protection of aquatic and terrestrial resources based on the most current and best available scientific knowledge and technical information.

[4] Past BOF and CAL FIRE monitoring reports are posted on the Board's Monitoring Study Group website: http://www.bof.fire.ca.gov/board_committees/monitoring_study_group/.

C. Develop guidance for appropriate scientific methods and statistical evaluation used to evaluate effectiveness of California Forest Practice Rules.

1. Address the importance of understanding both temporal and spatial scales and variation which may potentially influence scientific results.
2. Address physical environmental factors, including ecological scales that may potentially influence scientific results.
3. Provide guidance for the acceptable level of scientific uncertainty across the broad spectrum of monitoring efforts from small-scale short-term monitoring to long-term replicated studies.

D. Develop methods to prioritize monitoring questions, and based on this method, help select the highest priority projects to collaboratively monitor.

E. Foster a collaborative scientific atmosphere to build partnerships and relationships.

1. Effective partnerships may help defer or share the costs of monitoring and help build mutual trust and understanding of scientific results.

F. Promote collaborative fact-finding and understanding of scientific results at local, regional, and state levels.

G. Spread awareness of results to stakeholders, decision-makers, and the public through:

1. Field tours.
2. Internet availability.
3. Workshops and conferences.
4. Scientific journals.
5. Other user-friendly formats.

III. Membership

A. Appointment, Representation, and Compensation

The Board shall appoint a panel of EMC members and agency representatives[5] that: (1) have scientific and natural resource professional backgrounds, (2) have demonstrated previous collaboration in resource monitoring or scientific studies, and (3) are willing to serve on the EMC. Members should be capable of working collaboratively and developing work products in a timely manner. Members shall be appointed by the Board, with appointees having expertise in hydrology, geology, fluvial geomorphology, aquatic ecology, fisheries, forestry, wildlife

[5] Agency representatives include: Natural Resources Agency, Department of Fish and Wildlife, California Geological Survey, California Department of Forestry and Fire Protection, Regional Water Quality Control Boards, National Marine Fisheries Service, and US Fish and Wildlife Service. Review Team agencies will assign a lead representative and a back-up representative. Mr. John Laird, Secretary for Natural Resources, will be consulted regarding agency representation.

management, and resource monitoring and sampling. In addition, members shall also have a working knowledge of the California Forest Practice Rules and forest management operations on private and state forestlands.

A statement of qualifications shall be required to verify education and field/rule application experience. Members shall be appointed from academia, professional consulting firms, state and federal agencies, private and state forestland owners, and the public. Members should be applied scientists or natural resource professionals representing each stakeholder group.

There is no compensation for service on this advisory committee, but members shall be reimbursed for their expenses in attending meetings to the extent that the law allows.

B. Duration

The EMC shall be a permanent Advisory Committee of the Board. The duration for appointment to this committee is either two, three, or four years (i.e., mixed appointments).

IV. Committee Structure

A. Chair and Vice-Chair

The Board shall appoint a chair and a vice-chair of the EMC for two year terms. Strong leadership has been found to be critical for successful adaptive management (Gregory et al. 2006).

B. Meetings

EMC meetings shall be publicly noticed and will be open to all interested parties, following the Bagley-Keene Open Meeting Act requirements. Meetings are anticipated to occur at least once every two months in central locations, and they will incorporate the use of web-based conferencing where possible. The EMC chair shall invite public comment at specified times during a meeting. The EMC chair and Board/CAL FIRE staff shall be responsible for determining meeting times, format, location, and duration. CAL FIRE and/or the Board shall provide staffing for the EMC. Meeting agendas shall be posted on the Board EMC website. Meeting minutes shall be posted on both the Board EMC web and EMC ftp sites.

BOF appointed EMC members shall be required to follow meeting "ground rules." [6] These include a commitment to:

[6] Note that these ground rules are based on those used by the Timber, Fish, Wildlife (TFW) Group in Washington, and have proven highly valuable (WFPB 1987).

(1) Attempt to reach consensus,
(2) Attend all scheduled meetings,
(3) Listen carefully and ask questions to better understand unclear issues,
(4) Have the EMC receive priority attention, staffing, and time,
(5) Have all parties clearly define the purposes and goals of their organizations, and
(6) Have all parties recognize the legitimacy of the goals of other organizations.

C. EMC Actions

The goal will be to for all actions and recommendations to be made by consensus. Facilitation may be necessary. If failure to reach consensus occurs, the record shall specify the key differences and the reasons consensus could not be reached.

V. Implementation of Effectiveness Monitoring

Funding for the highest rated study proposals is expected to come from a combination of sources, including:

- AB 1492 (the lumber tax bill), requiring an evaluation of ecological performance [Sec. 4629.9 (a)(8)(F)], including monitoring the effectiveness of regulations promoting ecological benefits.
- State and private sources.
- Grants.

In a collaborative process, the EMC, its stakeholders, and Board/CAL FIRE/Natural Resource Agencies staff shall be responsible (if necessary) for developing specific monitoring plans. Data will be collected using several different approaches—compiling data where it is readily available, in addition to developing new study plans, securing peer review, and overseeing the completion of the scientific investigations. These approaches likely will include:

1. Forming state agency teams to conduct programmatic effectiveness monitoring of timberland management compliance with exisiting laws and regulations for adaptive management, similar to the process used for the Interagency Mitigation Monitoring Program (IMMP) from 2005 to 2008 to evaluate watercourse crossings (Longstreth et al. 2008) and by the Battle Creek Task Force (2011). All stakeholders will be invited to observe collection of field data. Members of the general public may participate in monitoring efforts at the sole discretion of the EMC, its stakeholders, and at the permission of participating private landowners, if necessary and required.

2. Utilizing data produced by existing landowner monitoring programs, provided that there is sufficient state agency oversight.

3. Utilizing data from existing state agency monitoring programs where and when appropriate (e.g., SWAMP, FORPRIEM, etc.).

4. Hiring contractors to address issues requiring special expertise, short turn-around time, or support from EMC staff.

Both statewide (or regional) trend monitoring data are required, as are more site-specific data to answer specific questions related to effectiveness of key laws and regulations (e.g., Class II-L water temperature questions). "Specific question" studies may initially be implemented on Demonstration State Forests as pilot projects with a high likelihood of success.

"Measurables" or key criteria are necessary for statewide data, and selected criteria may be able to be patterned after those utilized by the Oregon Department of Forestry's Indicators of Sustainable Forests program. The EMC will make decisions regarding key criteria for effectiveness and trend monitoring.

VI. Reports and Adaptive Management Process

Members of the EMC or principal investigators conducting monitoring will synthesize the results into final reports for the EMC. The reports shall include descriptions of purpose and need, scientific methods, results and technical analysis, evaluation of implications for resources and forest management operations, and possible limitations of results and scientific uncertainity. The reports shall not attempt to provide policy or regulatory recommendations. All final reports will be made available to the public on the internet.

All reports shall discuss the statistical and biological relevance of the monitoring and results. Due to relatively small sample sizes and lack of controls for both dependent and independent variables associated with "specific question" studies, statistically rigorous testing of water-quality, aquatic habitat and wildlife resource questions are often difficult. However, well developed resource monitoring questions can improve scientific monitoring designs so that spurious results are limited. Both statistical and biological relevance of the monitoring and the resulting acceptable level of scientific uncertainty should be clearly stated in each monitoring proposal and final report.

Results and findings of individual EMC reports are to be reviewed and discussed by the RSC. However, review by the RSC is for the specific purpose of developing long-term strategic planning by the RSC. Development of possible rule language options based on results and findings of EMC reports, if necessary, shall be proposed by the Board's Forest Practice Committee, Board staff, or CAL FIRE prior to sending them to the full Board.

VII. Assistance and Oversight

The EMC chair may seek technical advice from, including but not limited to, other state agency or departments, federal agency representatives, and technical experts on developing effectiveness monitoring projects.

The Board's Executive Officer will act as the liaison between the Board and the EMC.

VIII. Timeline[7]

May 2013: The draft EMC Charter will be sent to the full Board and the Board's RSC for their review. Upon their approval, the EMC Charter will be publically vetted at a Board Monitoring Study Group meeting in early 2013.

June-July 2013: Board appointments to the EMC.

August 2013: Initial meeting of the EMC.

December 2013: Initial report to the Board by the EMC chair.

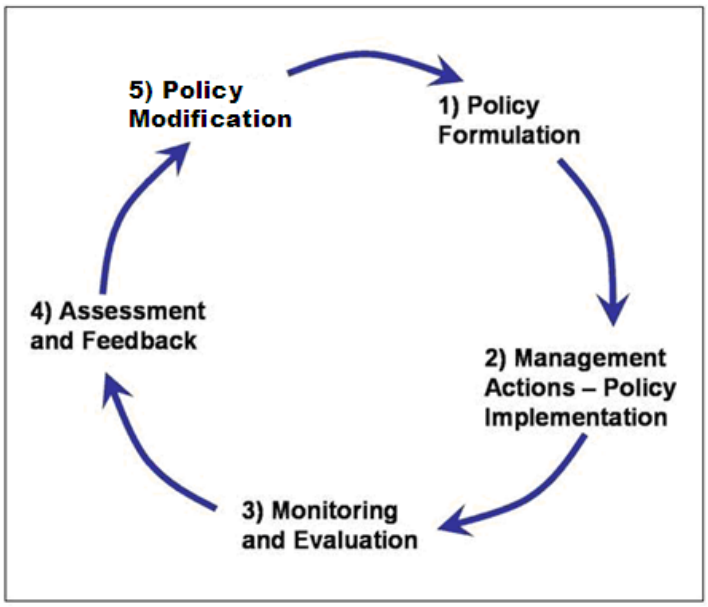

Figure 1. Iterative cycle of policy development and implementation used in adaptive management, allowing monitoring data to inform management and regulation.

[7] Note that the Timeline is subject to change.

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